

04-16-01

JC04 Rec'd PCT/PTO 13 APR 2001

EXPRESS MAIL NO. EL276178012

PC

FORM PTO-1300  
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

# TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/807595

INTERNATIONAL APPLICATION NO.

PCT/IB99/01778

INTERNATIONAL FILING DATE

12 October 1999

PRIORITY DATE CLAIMED

15 October 1998

TITLE OF INVENTION

VOLUMETRIC OPERATING SYSTEM FOR VEHICLE LIFTS

APPLICANT(S) FOR DO/EO/US

GRANATA, Tebaldo

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☒ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☐ Other items or information:



-1-

## VEHICLE LIFT

## TEXT OF DESCRIPTION

- 5 The present invention relates to vehicle lifts, in particular of the scissors type. In the following description, scissors-type lifts mean in general scissors- and double-scissors-type lifts, in which, when the scissors are closed, the lift is lowered to ground level, and when
- 10 the scissors are open, the lift is raised, and inverted- and double-inverted-scissors-type lifts, in which the scissors open beneath ground level, in order to lower the lift, and are closed at ground level, in order to lower the lift, and are closed at ground level in order to raise the lift,
- 15 optionally with the assistance of pistons or rack-type mechanisms.

- The FR-A-1 575 128 discloses a scissors-type vehicle lift comprising a volumetric operating system in which two
- 20 cylinders move a vehicle lifting runway. A main cylinder receives the operating fluid directly from supply means, and a secondary cylinder receives the operating fluid from the outlet of the main cylinder, whereby with the runway there is associated the main cylinder and the secondary cylinder.
- 25 Scissors-type lifts have been developed in which, in order to move the lift, a pair of cylinders is provided for each of the lifting scissors of the runways. The known operating system for the cylinders is of the serial type, i.e. in a
- 30 first runway there are disposed the main cylinders, the outlet of which supplies the secondary cylinders which are associated with the other runway. This arrangement requires

-1a-

temporally staggered raising of the two runways, and thus gives rise to a loss of parallelism of the vehicle relative to the ground. In addition, the force on the pair of cylinders is asymmetrical, with all the resulting problems.

5

The object of the present invention is thus to provide a volumetric operating system for vehicle lifts, in particular of the scissors type, which permits synchronized movement of the runways.

10

069055-7107

This problem is solved remarkably well by means of a volumetric operating system according to claim 1, for vehicle lifts. Further advantageous characteristics of the said system are indicated in the dependent claims.

5

The characteristics, objects and advantages of the present invention will become more apparent from the following description and from the attached drawings relative to a non-limiting embodiment. In the various figures:

10

Figure 1 is a schematic view of the volumetric operating system for lifts according to the prior art; and

15

Figure 2 is a schematic view of the volumetric operating system for lifts according to the present invention.

20

25

30

35

With reference firstly to figure 1, a volumetric operating system 100 for scissors-type vehicle lifts has firstly two runways 112, 114. With each runway there is associated at least one pair of scissors (not shown), which is controlled by a respective pair of cylinders 116, 118 and 120, 122. Pressurised fluid, for example oil, air or liquid, is supplied via a valve 124 and two pipes 128 and 130 to the two cylinders 116 and 118 which are associated with the first runway 112. It will be appreciated that upstream from the valve 124, there are present the corresponding command and control components, which are not described in detail, since they are not relevant for the purposes of the present invention. Two pipes 132, 134 supply respectively to the two cylinders 120, 122 which are associated with the second runway 114, the fluid output from the rod chamber of the cylinders 116, 118. In other words, the system 100 is of the serial type, in which, with the first runway 112 there are associated the main cylinders 116, 118, and with the second runway 114 there are associated the secondary cylinders 120, 122. However, since in a volumetric system the main cylinders tend to

fill before the secondary cylinders, in the case of the device in figure 1, the runway 112 tends to rise before the runway 114. Consequently, the vehicle is not raised perfectly parallel to the ground, and the force on the pairs of cylinders is asymmetrical, with all the resulting problems.

Figure 2 illustrates a volumetric operating system 10 according to the invention, for scissors-type vehicle lifts, in which the components of the system 10 which correspond to those of the system 100 in figure 1 have corresponding reference numbers, but reduced by 100. Thus, with each runway 12, 14, there is associated at least one pair of scissors (not shown), which is controlled by a respective pair of cylinders 16, 18 and 20, 22. However, according to the present invention, the pressurised fluid is supplied via a valve 24 and two pipes 28, 30, to the cylinder 16 which is associated with the first runway 12, and to the cylinder 22 which is associated with the second runway 14. The outlet of the rod chamber of the cylinders 16, 22 is connected by means of two pipes 32, 34 respectively, to the cylinder 20 which is associated with the second runway 14, and to the cylinder 18 which is associated with the first runway 12. The system 10 is thus of the cross-type, in which the main cylinders 16, 22 and the secondary cylinders 18, 20 are associated, one with each runway 12, 14. Consequently, according to the invention, the two runways 12, 14 are raised simultaneously with the filling of the main cylinders 16, 22, and the temporal staggering of operation of the secondary cylinders 18, 20 does not have significant consequences on the movement of the runways 12, 14. The vehicle is thus raised in a manner which is perfectly parallel to the ground, and the force on the pairs of cylinders which are associated with the two runways is perfectly symmetrical.

Finally, it should be noted that, although the arrangement illustrated in figure 2 is optimal from the point of view of synchronisation and automatic control of the movement of the runways, satisfactory results can also  
5 be obtained by providing a pair consisting of a main cylinder and a secondary cylinder associated for each runway. Finally, it will be apparent to persons skilled in the art that the design characteristics of the cylinders are irrelevant, provided that the main cylinders have an  
10 outlet for the fluid which can be used to supply the secondary cylinders. In addition, it will be appreciated that the basic principle of the invention can be extended to any number of pairs of cylinders, and it must thus be considered that numerous modifications, adaptations,  
15 integrations, variants and substitutions can be made to the embodiment previously described by way of illustrative, non-limiting example, without departing from the context of the invention, as determined by the following attached claims.

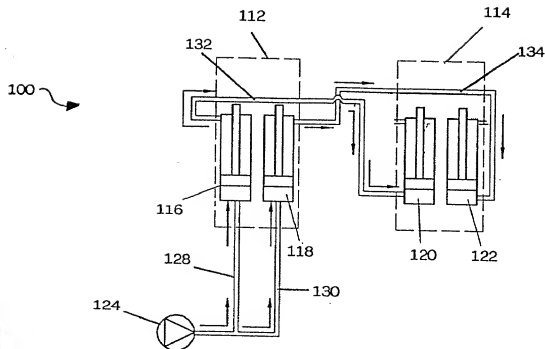
20

## ABSTRACT

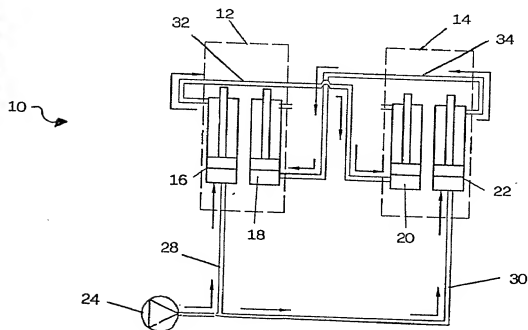
A description is provided of a volumetric operating system (10) for scissors-type vehicle lifts, comprising a plurality of cylinders (16, 18, 20, 22) for movement of the vehicle lifting runways (12, 14), of which the main cylinders (16, 22) receive the operating fluid directly from supply means (24, 28, 30), and the secondary cylinders (18, 20) receive the operating fluid from the outlet (32, 34) of a respective one of the main cylinders (16, 22), wherein with each runway (12, 14) there is associated at least one of the said main cylinders (16, 22), and at least one of the said secondary cylinders (18, 20). Preferably, the outlet of each main cylinder (16, 22) which is associated with one of the runways (12, 14) supplies a secondary cylinder (18, 20) which is associated with the other runway (12, 14).

09807595-071101





**Fig. 1** PRIOR ART



**Fig. 2**

## [CLAIM]

1. Vehicle lift comprising vehicle lifting runways (12, 14) and a volumetric operating system (10) having a plurality of cylinders (16, 18, 20, 22) for movement of the vehicle lifting runways (12, 14), including main cylinders (16, 22) and secondary cylinders (18, 20), of which the main cylinders (16, 22) receive the operating fluid directly from supply means (24, 28, 30), and the secondary cylinders (18, 20) receive the operating fluid from the outlet (32, 34) of a respective one of the main cylinders (16, 22), with each runway (12, 14) there is associated at least one of the said main cylinders (16, 22), and at least one of the said secondary cylinders (18, 20), characterized in that the outlet of each main cylinder (16, 22) which is associated with one of the runways (12, 14) supplies a secondary cylinder (18, 20) which is associated with the other runway (12, 14).

146A3  
T1821 PCT**DECLARATION FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled VOLUMETRIC OPERATING SYSTEM FOR VEHICLE LIFTS, the specification of which was filed on April 13, 2001, as United States Application Serial No. 09/807,595.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Claimed? Y/N	Certified Copy Attached? Y/N
PCT/IB99/01778	PCT	15 October 1998	Yes	N

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below:

Application Number(s)	Filing Date (MM/DD/YYYY)
None.	

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:


Application Number(s)	Filing Date (MM/DD/YYYY)
None.	

I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and to file and prosecute any corresponding foreign applications, including any international applications under the Patent Cooperation Treaty or the European Patent Convention: Peter W. Gowdey,

21  
Reg. No. 25,872; William B. Kircher, Reg. No. 22,481; James H. Marsh, Jr., Reg. No. 24,533; J. David Wharton, Reg. No. 25,717; Joseph B. Bowman, Reg. No. 25,807; Richard R. Johnson, Reg. No. 27,452; Walter R. Brookhart, Reg. No. 29,518; James H. Riley, II, Reg. No. 31,131; Joan Optican Herman, Reg. No. 31,968; Michael B. Hurd, Reg. No. 32,241; Michael J. Gross, Reg. No. 35,528; William P. Jensen, Reg. No. 36,833; Chris Murphy, Reg. No. 39,786; Daniel W. Shinn, Reg. No. 40,810; B. Trent Webb, Reg. No. 40,865; Susan J. Wharton, Reg. No. 41,524; Scott B. Strohm, Reg. No. 42,172; Janine A. Carlan, Reg. No. 42,387; Clinton G. Newton, Reg. No. 42,930; Ladi Shogbamimu, Reg. No. 46,291; and Dennis Danella, Reg. No. 46,653. Address all correspondence to: PETER W. GOWDEY, SHOOK, HARDY & BACON L.L.P., 600 14th Street, N.W., Suite 800, Washington, D.C. 20005-2004, telephone number (202) 783-8400.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

0960595-071101  
Inventor's  
signature



Tereza Granata

02.09.2001  
Date

Residence:  
Citizenship:  
Post Office Address:

Treglio (CH), Italy  
Italy  
Cda. San Giorgio, No. 74  
I-66030 Treglio (CH), Italy

ITX